

REPLACEMENT CLAIMS

1 1. (AMENDED) A microelectromechanical device, comprising
2 a. a rotating element including a first electrode;
3 b. a vertical stop disposed proximate the rotating
4 element;
5 [b] c. a second electrode;
6 [c] d. means, coupled to the first and second
7 electrodes for measuring a capacitance between them;
8 and
9 [d] e. means coupled to the capacitance sensing means
10 for determining from the capacitance a digital
11 control state of the device.

1 6. (AMENDED) A microelectromechanical system (MEMS)
2 apparatus, comprising
3 a. an element configured to rotate between a first
4 [angular position] control state and a second
5 [angular position] control state;
6 b. a vertical stop disposed proximate the element;
7 [b] c. one or more electrodes disposed proximate the
8 element, wherein a capacitance between the element
9 and the one or more [electrode] electrodes has a
10 first value when the element is in [a] the first
11 control state and the capacitance has a second value
12 when the element is in [a] the second control state;
13 [c] d. means, for measuring a value of the capacitance
14 between the element and the at least one of the one
15 or more electrodes; and
16 [d] e. means coupled to the capacitance sensing means
17 for determining a control state of the element from
18 the value of the capacitance.

1 16. (AMENDED) A method for sensing the control state of a
2 microelectromechanical device, comprising:

3 [a. providing an element that is rotatable relative to a
 4 static part between a first control state and a second
 5 control state;
 6 b. disposing a first electrode and a second electrode
 7 proximate the element; and
 8 c.] measuring a value of a capacitance between a
 9 rotatable [the] element and one or more of [the] a
 10 first and second [electrodes] electrode disposed
 11 proximate the rotatable element to determine whether
 12 the rotatable element is in a first control state, a
 13 second control state, or neither the first nor second
 14 control state,
 15 wherein the rotatable element is in a vertical position
 16 proximate a vertical stop when the rotatable element is in
 17 the first or second control state.

1 22. (AMENDED) An optical communications system, comprising:
 2 a) one or more input optical fibers;
 3 b) one or more output optical fibers;
 4 c) a microelectromechanical system (MEMS) optical switch
 5 including:
 6 i) one or more MEMS mirrors configured to rotate
 7 between a first angular position and a second
 8 angular position;
 9 ii) b. a vertical stop disposed proximate one or
 10 more of the MEMS mirrors;
 11 [ii] iii) one or more electrodes disposed proximate
 12 each of the one or more mirrors, wherein a
 13 capacitance between the mirrors and the
 14 electrodes has a first value when the mirrors
 15 are in a first control state and the capacitance
 16 has a second value when the element is in a
 17 second control state;
 18 [iii] iv) means, for measuring a value the
 19 capacitance between at least one of the one or

ONX-101

20 more mirrors and the at least one of the one or
21 more electrodes; and
22 [iv] y) means coupled to the capacitance sensing
23 means for determining a control state of the
24 element from the value of the capacitance.

1